

Applicants: Edelberg et al.  
Serial No.: 10/527,832  
Filed: September 19, 2005  
Response to Restriction Requirement  
and Preliminary Amendment  
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**Preliminary Amendment**

Prior to the examination of the above-identified application, please amend the application as follows:

**IN THE CLAIMS:**

*This listing of claims will replace all prior versions and listings of claims in the application:*

1. (Withdrawn) An isolated peptide comprising the amino acid sequence QA(Q/E)GQLV or functional equivalents thereof, wherein said peptide selectively homes to TNF receptor(s) of the vasculature of a heart.
- 2.-17. (Cancelled)
18. (Withdrawn) An isolated peptide comprising the amino acid sequence ARRGQAV or functionally equivalent thereof, wherein said peptide preferentially homes to BDNF receptor(s) of the vasculature of a heart.
- 19.-32. (Cancelled)
33. (Withdrawn) An isolated peptide comprising the amino acid sequence G(R/W)RFIRV or functional equivalent thereof, wherein said peptide preferentially homes to BDNF receptor(s) of the vasculature of a heart.
- 34.-51. (Cancelled)

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52. (Withdrawn) A conjugate comprising a peptide according to claim 1 and a functional moiety, wherein said peptide selectively homes to TNF receptor(s) in the vasculature of a heart.

53.-65. (Cancelled)

66. (Withdrawn) A conjugate comprising a peptide according to claim 18 and a functional moiety, wherein said peptide preferentially homes to BDNF receptor(s) of the vasculature of a heart.

67.-74. (Cancelled)

75. (Withdrawn) A conjugate comprising a peptide according to claim 33 and a functional moiety, wherein said peptide preferentially homes to BDNF receptor(s) of the vasculature of a heart.

76.-85. (Cancelled)

86. (Withdrawn) A method for determining a young heart or young areas of a heart vasculature in a mammal comprising:

- a) administering a peptide comprising the amino acid sequence QA(Q/E)GQLV or functionally equivalent modifications thereof, conjugated to a detectable marker, wherein said first peptide selectively homes to TNF receptor(s) in a vasculature of the heart; and
- b) detecting the marker;

wherein a disproportionately high binding of QA(Q/E)GQLV is a young heart or young areas of a heart vasculature.

87.-91. (Cancelled)

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92. (Currently Amended) A method for determining an old heart or old areas of a heart vasculature in a mammal comprising:

- a) administering a peptide comprising the amino acid sequence ~~ARRGQAV or G(R/W)RFIRV or functionally equivalent modifications thereof, identified in SEQ ID NO: 4, said peptide~~ conjugated to a detectable marker, wherein said first peptide selectively homes to BDNF receptor(s) in a vasculature of the heart; and
- b) detecting the marker;

wherein a disproportionately high binding of ~~ARRGQAV or G(R/W)RFIRV said peptide~~ is an old heart or old areas of a heart vasculature.

93.-101. (Cancelled)

102. (Withdrawn) A method for determining the condition of a vasculature of a heart in a mammal comprising:

- a) administering a first peptide comprising the amino acid sequence QA(Q/E)GQLV or functionally equivalent modifications thereof, conjugated to a first detectable marker, wherein said first peptide selectively homes to TNF receptor(s) in the vasculature of the heart;
- b) administering a second peptide comprising the amino acid sequence ARRGQAV or G(R/W)RFIRV or functionally equivalent modifications thereof, conjugated to a second detectable marker, wherein said second peptide homes to BDNF receptor(s) in the vasculature of the heart; and
- c) detecting the first and second marker;

wherein a disproportionately high ratio of binding of the first peptide to the second peptide indicates a young heart or young areas of the heart vasculature or wherein a disproportionately low ratio of binding of the first peptide to the second peptide indicates an old heart or old areas of the heart vasculature.

103.-115. (Cancelled)

116. (Withdrawn) A method for delivering a functional moiety to a young heart vasculature in a mammal, the method comprising administering a conjugate of claim 52.

117.-126. (Cancelled)

127. (Currently Amended) A method for delivering a functional moiety to a old heart vasculature in a mammal, the method comprising administering a conjugate of claim 66, said conjugate comprising a peptide comprising the amino acid sequence identified in SEQ ID NO: 4 and said functional moiety, wherein said peptide preferentially homes to BDNF receptor(s) of the vasculature of a heart.

128.-138 (Cancelled)

139. (Withdrawn) A method for discovering mimics of amino acid sequence QA(Q/E)GQLV or functionally equivalent modifications thereof, comprising:

- determining a three-dimensional structure of said sequence;
- identifying compounds comprising said structure; and
- determining the capacity of said compounds for selective homing to TNF receptor(s) in a heart vasculature of a mammal;

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wherein compounds which selectively home to TNF receptor(s) in the vasculature of the heart are mimics.

140.-146. (Cancelled)

147. (Withdrawn) A method for discovering mimics of amino acid sequence ARRGQAV or G(R/W)RFIRV or functionally equivalent modifications thereof, comprising:

- a) determining a three-dimensional structure of said sequence;
- b) identifying compounds comprising said structure; and
- c) determining the capacity of said compounds for homing to BDNF receptor(s) in a heart vasculature of a mammal;

wherein compounds which home to BDNF receptor(s) in the vasculature of the heart are a mimics.

148.-156. (Cancelled)

157. (Withdrawn) A method for delivering a functional moiety to a old heart vasculature in a mammal, the method comprising administering a conjugate of claim 75.

158. (New) A method according to claim 92, wherein BDNF receptor is trkB receptor.

159. (New) A method according to claim 158, wherein the trkB receptor is truncated trkB.

160. (New) A method according to claim 92, wherein said vasculature is microvasculature.

161. (New) A method according to claim 127, wherein the BDNF receptor is trkB receptor.

162. (New) A method according to claim 161, wherein the trkB receptor is truncated trkB.

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163. (New) A method according to claim 127, wherein said functional moiety is a therapeutic agent.
164. (New) A method according to claim 163, wherein said therapeutic agent is estrogen.
165. (New) A method according to claim 127, wherein said functional moiety is a detectable marker.